

WHAT IS CLAIMED IS:

1. A filter circuit comprising:

a first differential circuit formed by a combination of one transistor and four diodes connected in parallel with each other and each having one electrode connected to a first electrode of said one transistor, a first current corresponding to an input signal flowing through said four diodes;

a second differential circuit formed by a combination of one diode and four transistors connected in parallel with each other and each having a first electrode connected to one electrode of said one diode, a second current corresponding to the input signal flowing through said one diode;

a current source connected to a common connection point of said four diodes and said one diode; and

a capacitor through which a current determined by a current of said current source, said first current, and said second current flows.

2. A filter circuit as claimed in claim 1,

wherein a plurality of said first differential circuits are connected in series with each other and a plurality of said second differential circuits are connected in series with each other between a first power supply and a second power supply.

3. A filter circuit as claimed in claim 1,
wherein a plurality of said first differential
circuits are connected in series with each other between
a circuit input terminal and a circuit output terminal;
and

said second differential circuit is connected in
parallel with each of said first differential circuits.

4. A filter circuit as claimed in claim 1,
wherein a first series connection circuit formed by
connecting a plurality of said first differential
circuits in series with each other is connected in
parallel with a second series connection circuit formed
by connecting a number of said second differential
circuits, the number being identical with that of said
first differential circuits of said first series
connection circuit, in series with each other between a
circuit input terminal and a circuit output terminal.

5. A filter circuit as claimed in claim 1,
wherein a control electrode of said one transistor
and control electrodes of said four transistors are
connected to a first circuit input terminal, and the
common connection node of said four diodes and said one
diode is connected to a first circuit output terminal;
and

one terminal of said capacitor is connected to said

first circuit output terminal.

6. A filter circuit as claimed in claim 5, wherein said first differential circuit, said second differential circuit, and said current source are further provided between a second circuit input terminal, a second circuit output terminal, and the other terminal of said capacitor.

7. A filter circuit as claimed in claim 1, wherein a control electrode of said one transistor and control electrodes of said four transistors are connected to a direct-current power supply, and the common connection node of said four diodes and said one diode is connected to a first circuit output terminal; and

said capacitor is connected between a first circuit input terminal and said first circuit output terminal.

8. A filter circuit as claimed in claim 7, wherein said first differential circuit, said second differential circuit, and said current source are further provided between said direct-current power supply and a second circuit output terminal; and said capacitor is connected also between a second circuit input terminal and said second circuit output terminal.

9. A filter circuit as claimed in claim 1, wherein a control electrode of said one transistor

and control electrodes of said four transistors are connected to a first circuit input terminal, the common connection point of said four diodes and said one diode is connected to a second circuit output terminal, and said first differential circuit, said second differential circuit, and said current source are provided also between a second circuit input terminal and a first circuit output terminal; and

said capacitor is connected between said first circuit input terminal and said first circuit output terminal and between said second circuit input terminal and said second circuit output terminal.